AF/2112/ ZMW

Docket No. GR 00 P 12246

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MAIL STOP: APPEAL BRIEF-PATENTS

By: _____ Date: November 14, 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	09/883,817 Confirmation No.: 2567
Inventor	:	Jens Barrenscheen, et al.
Filed	:	June 18, 2001
Title	:	Method of Transmitting Data Between Devices Connected Via a Multi-Master Bus Defining a Time Slot During Transmission for Responsive Output Information from Non-Bus Master Devices
TC/A.U.	:	2112
Examiner	:	Clifford H. Knoll
Customer No.	:	**24131**

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

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BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated May 9, 2005, finally rejecting claims 1-5, 7-28, 30-46 and 93-94.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of $500.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Infineon Technologies of München, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-5, 7-28, 30-46 and 93-94 are rejected and are under appeal. Claims 6, 29 and 47-92 were cancelled in an amendment dated September 28, 2004.

Status of Amendments:

No claims were amended after the final Office action. *A Response under 37 CFR § 1.116* was filed on August 9, 2005. The Primary Examiner stated in an *Advisory Action* dated August 19, 2005, that the request for reconsideration had been

considered but did not place the application in condition for allowance.

Summary of the Claimed Subject Matter:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention relates to method of transmitting data between devices that are connected via a bus, and to a device that can be connected to other devices via a bus.

Appellants explained on page 11 of the specification, line 8, that the method described below is used to transmit data between devices which are connected via a bus; the device described below is a device which is suitable for carrying out the method. A possible design of the system in which the method and the device can be used is illustrated in Fig. 1. Reference is had to the introductory text above. It should be understood, however, that that the invention is not limited to the configuration of Fig. 1. The system can also be of any other desired configuration design.

Appellants further explained on page 11 of the specification, line 18, that the term "bus" can be understood to be a communications device which is not connection-orientated and

via which data can be exchanged optically, electrically or in some other way between devices which are connected to the bus.

It is also stated on page 11, line 23, that, in the example in question, each of the devices N1, N2, ... Nn which are connected to the bus BUS can become bus master; the system is therefore what is referred to as a multi-master bus system. However, there is no restriction to this. The use of the method described above also proves advantageous if just a single device or only a small number of the existing devices can become bus master.

Appellants outlined on page 12 of the specification, line 5, that, in the present case, the devices N1, N2, ... Nn which are connected to the bus themselves determine who is bus master. This is carried out, as in the case of the CAN bus, taking into account the data transmitted via the bus; as long as a respective device finds again the data output by it on the bus, it can feel it is the bus master. However, the use of the method described below has also proven advantageous in systems in which the bus master is defined differently, for example by means of a bus controller.

Appellants further outlined on page 12 of the specification, line j15, that the bus BUS of the system in question is

supplied on a standard basis with a potential which represents the level 0 and is changed to a different potential "only" if a bit having the level 1 is to be transmitted via the bus. Because the potential representing the level 0 can be drawn, if necessary, to the potential representing the level 1, bits having the level 1 are designated as dominant bits and bits having the level 0 are designated as recessive bits. It should be apparent that there is no restriction to this. It is, of course, also possible to provide for the bits having level 1 to be the recessive bits and bits having the level 0 to be the dominant bits. The preassignment of a potential representing a specific level to the bus is carried out in the example in question using what is referred to as pull-down resistors or pull-up resistors which can be provided on devices connected to the bus, or elsewhere. The preassignment of a potential representing a specific level to the bus proves advantageous but is not a precondition for the method in question here to be applied.

Appellants described on page 13 of the specification, line 9, that, in the example in question, the bus BUS is configured for a transmission of data which takes place sequentially on a bit-by-bit basis. However, there is not any restriction to this either. The use of the method described below can also prove advantageous if the transmission takes place in parallel

or partially in parallel (for example sequentially on a byte-by-byte basis).

It is stated in the last paragraph on page 13 of the specification, line 17, that, the method in question here is distinguished by the fact that

> the data to be transmitted from a first device to one or more second devices is transmitted, together with information which is required or useful for the transmission and/or the use of the data, into units, at least some of which comprise at least one region which defines a time slot within which the devices transmitting no data can output onto the bus data representing specific information, and that, in the devices which must be able to output data within said time slot, settings is made to determine under which conditions data is to be output within the time slot, and/or which data representing information is to be output within the time slot, and/or at which points in time within the time slot the data is to be output, and/or

> the data to be transmitted from a first device to one or more second devices is transmitted, together with information which is required or useful for the

> transmission and/or the use of the data, into units, at least some of which comprise at least one region which defines a time slot within which the devices transmitting no data can output onto the bus data representing specific information, and that settings are made, at least in specific devices, to determine which other devices have to output data within the time slot, and/or which data representing information is to be output within the time slot by the other devices, and/or at which points in time within the time slot the other devices have to output the respective data.

Appellants described on page 14 of the specification, line 23, that the device in question here is distinguished by the fact that

> the device is designed in such a way that the data to be transmitted can be transmitted, together with information which is required or useful for the transmission and/or the use of the data, into units, at least some of which comprise at least one region which defines a time slot within which the device can output onto the bus data representing specific information, and that settings are made in the device to determine under which conditions it has to output data within the time slot and/or which data

representing information it has to output within the time slot and/or at which points in time within the time slot the data is to be output, and/or

the device is designed in such a way that the data to be transmitted can be transmitted, together with information which is required or useful for the transmission and/or the use of the data, into unit, at least some of which comprise at least one region which defines a time slot within which one or a plurality of other devices can output onto the bus data representing specific information, and that settings are made in the device to determine which other devices have to output data within the time slot, and/or which data representing information has to be output within the time slot and/or at which points in time within the time slot the other devices have to output the respective data.

Appellants explained on page 16, line 1, that the aforesaid units in which the data to be transmitted is transmitted together with information that is required or useful for the transmission and/or the use of the data and/or further information, are, for example, the frames or messages which are known from already existing bus systems. However, the frames or messages which are used in the method in question

here have a structure different from conventional frames or messages.

Appellants further explained on page 16, line 10, that an example of the structure of a frame or a message which is used in the method in question here is illustrated in Fig. 2.

It is also stated on page 16 of the specification, line 13, that this frame or this message comprises a synchronization field SYN, an identifier field ID, a control field CTRL, a data field DATA, an error detection field CRC, and a reply field REPLY.

As set forth on page 16 of the specification, line 18, that the synchronization field SYN, the identifier field ID, the control field CTRL, the data field DATA and the error detection field CRC are filled with data comprising one or more bits in each case, by the device sending the frame or message, and are subsequently - as soon as the respective device can become bus master - output onto the bus sequentially on a bit-by-bit basis. Of these fields,

- the synchronization field SYN receives a specific bit or a specific bit sequence by means of which the start of a frame or of a message is indicated to the other devices;

- the identifier field ID contains one or more bits which specify the type, the contents and/or the receiver of the respective frame or of the respective message;

- the control field CTRL contains one or more bits which specify the length of the data field,;

- the data field DATA contains the data or the message which is actually to be transmitted; and

- the error detection field CRC contains one or more bits which can be used to detect and/or correct transmission errors.

As outlined on page 17 of the specification, line 15, the reply field REPLY is not filled with data, or at any rate only filled partially with data, by the device sending the frame or the message. This field thus defines a time slot in which the devices which are not bus master can, or must, output data onto the bus. Depending on the length of the time slot defined by the reply field, one or more bits can be transmitted via the bus in that time slot.

Appellants stated on page 18 of the specification, line 1, that the information which the data represents and which is

transmitted via the bus in the time slot defined by the reply field can be a very wide range of information, for example

> the signaling from one or more devices connected to the bus that said device or devices has/have received in a fault-free condition the frame or the message of which the reply field is a component (or possibly also a previously transmitted frame or a previously transmitted message or data contained in it), and/or
>
> the signaling from one or more devices connected to the bus that said device or devices has/had not received in a fault-free condition the frame or the message of which the reply field is a component (or possibly also a previously transmitted frame or a previously transmitted message or date contained in it), and/or
>
> information from one or more of the devices connected to the bus relating to their states (for example relating to the operating mode in which they are in, the utility factor, the temperature etc).

It is described in the last paragraph on page 18 of the specification, line 24, that settings which determine which device has to output which information onto the bus at which

point in time are preferably made in the respective devices themselves. As a result, the respective devices can output onto the bus independently, i.e. without triggering or authorization by the device controlling the bus allocation or by some other device, the data to be output by them onto the bus, and can do this at the correct time.

As set forth on page 19 of the specification, line 7, the corresponding settings in the devices connected to the bus are expediently made before the start of the transmission of the frame or message which contains the reply field, preferably at the time of initialization of the system which takes place for example after said system is switched on. It proves advantageous if the settings can be varied during operation. This could be brought about, for example, by means of control instructions sent in appropriate frames or messages. The execution of the setting by means of frames or messages sent via the bus can be used not only when changing the settings but also when making new settings of the devices.

It is also outlined on page 19 of the specification, line 19, that the corresponding settings are preferably stored in nonvolatile memories provided in the respective devices. It is then, under specific circumstances, sufficient if the settings are made only when the system is first put into operation.

Furthermore, it would then also be possible without difficulty (at any rate without repeated settings of the respective devices) for the devices to go in the meantime into an energy-saving operating mode (for example what is referred to as a sleep operating mode or what is referred to as a power down operating mode) during operation.

Appellants explained on page 20 of the specification, line 4, that, which device has to output which information onto the bus at which point in time can also be set permanently in the devices (for example by means of an appropriate hardware implementation of the respective devices or using jumpers).

Appellants further explained on page 20 of the specification, line 9, that the settings can be made uniformly (identical for all devices) or individually (differently).

As set forth on page 20 of the specification, line 12, the settings are made in the example in question in such a way that the content of the current frame or of a specific preceding frame or the content of the current message or of a specific preceding message, in particular the receivers of the frame or message which is specified in it is made to determine which device has to output which information onto the bus at

which point in time. There is thus a frame-specific or message-specific use of the reply field.

It is stated in the last paragraph on page 20 of the specification, line 21, that the length of the reply field (the length of the time slot defined thereby) is not subject to any restrictions and is preferably variable; it is expediently in each case precisely as long as is necessary to be able to transmit via the bus the information which is required or desired at this point in time.

Appellants explained on page 21 of the specification, line 2, that the data which the individual devices feed onto the bus within the time slot defined by the reply field can be required and evaluated by any other devices, that is to say not only by the device which sends the respective frame or the respective message. In a system which is the same as or similar to that in Fig. 1, it is, of course, possible for all devices constantly to keep track of whether data is transmitted via the bus, and if appropriate of which data this is.

It is further stated on page 21 of the specification, line 11, that, by means of the reply field and the possibility of defining when which device or devices is/are to output which

information onto the bus, the devices connected to the bus can obtain, with minimum effort and at maximum speed, the information which is required for satisfactory operation of the system. This minimum effort and maximum speed is due to the fact that,

it is not necessary for the information fed onto the bus in the reply field to be requested in a separate frame or in a separate message and/or to be sent to the devices requiring this information;

as a result of the selectability of the devices which are intended to reply, in each case only those devices from which information is required will output information;

as a result of the selectability of the information which the selected devices are intended to feed onto the bus in the time slot defined by the reply field, only the information which is actually required is transferred; and

as a result of the selectability of the points in time at which the selected devices feed onto the bus the selected information within the time slot defined by the reply field, it is possible to determine unequivocally which

> information it is in each case and which information originates from which device or from which group of devices.

Appellants outlined on page 22 of the specification, line 16, that some of the advantages which can be obtained by means of such a data transmission method and by means of such devices are explained below with reference to a number of selected examples.

As set forth in the last paragraph on page 22 of the specification, it will firstly be assumed that the device sending the frame or the message requires information indicating whether the respective frame or the respective message has been received by the receiver in a fault-free condition. This can be brought about by virtue of the fact that

> the device for which the respective frame or the respective message is intended is set in such a way that it outputs, within the time slot defined by the reply field or at a specific point in time within the time slot defined by the reply field, a positive acknowledge bit formed by a dominant bit in the example in question onto the bus if up to then it has received the frame or the

message in a fault-free condition, and it does not output a positive acknowledge bit (no dominant bit) if the opposite is the case, and

the devices for which the respective frame or the respective message is not intended are set in such a way that, at least at the point in time at which the device for which the respective frame or the respective message is intended, they have to acknowledge the fault-free reception of the frame or of the message by outputting a positive acknowledge bit, do not output any data onto the bus or any information indicating whether or not they have received the frame or the message in a fault-free condition up to then.

Appellants explained on page 23 of the specification, line 23, that., as a result, the device sending the respective frame or the respective message receives an unambiguous acknowledgement indicating whether the frame or the message has arrived in a fault-free condition at the device for which it is intended. In this way, in contrast with a CAN bus, it is not possible for the frame or the message to be sent again even though the receiver for which the respective frame or the respective message is intended has received it in a fault-free condition.

Appellants stated on page 24 of the specification, line 6, that, if the respective frame or the respective message is intended for a plurality of receivers it is possible to provide:

> that the devices for which the respective frame or the respective message is intended are set in such a way that, at different points in time within the time slot defined by the reply field, they output a positive acknowledge bit onto the bus if they have received the frame or the message in a fault-free condition until then, and they do not output a positive acknowledge bit if the opposite is the case, and
>
> that the devices for which the respective frame or the respective message is not intended are set in such a way that, at least at the points in time at which the devices for which the respective frame or the respective message is intended must be able to acknowledge the fault-free reception of the frame or of the message by outputting a positive acknowledge bit, said devices do not output any data onto the bus, nor any information indicating whether or not they have received the frame or the message in a fault-free condition until then.

Appellants outlined on page 25 of the specification, line 4, that, as a result, the device sending the respective frame or the respective message receives an unambiguous acknowledgement indicating whether the frame or the message has arrived in a fault-free condition at each individual device for which it is intended. The same result can be obtained,

> if the devices for which the respective frame or the respective message is intended are set in such a way that, within the time slot defined by the reply field or at a specific point in time within the time slot defined by the reply field, they output a negative acknowledge bit formed by a dominant bit in the example in question onto the bus if they have not received the frame or the message in a fault-free condition until then, and they do not output a negative acknowledge but (no dominant bit) if the opposite is the case, and
>
> that the devices for which the respective frame or the respective message is not intended are set in such a way that, at least at the point in time at which the devices for which the respective frame or the respective message is intended must be able to signal the non-fault-free reception of the frame or of the message by outputting a negative acknowledge bit, they do not output any data

onto the bus, nor any information indicating whether or not they have received the frame or the message in a fault-free condition until then.

It is mentioned on page 26 of the specification, line 6, that, as a result, the device sending the respective frame or the respective message also receives an unambiguous acknowledgement indicating whether the frame or the message has arrived in a fault-free condition at all the devices for which the respective frame or the respective message is intended. Although, if a transmission error has occurred, it is not possible to determine here which of the devices has not received the frame or the message in a fault-free condition, this is not generally significant because, of course, the frame or the message has to be transmitted again in any case.

As further set forth on page 26 of the specification, line 17, in cases in which it is necessary for specific devices, or for all the devices for which the respective frame or the respective message is intended start the further processing of the data contained in them synchronously (at the same time or at specific time intervals), it is possible to provide that not only the device sending the frame or the message but also the devices for which the respective frame or the respective message is intended monitor the data transmitted in the reply

field via the bus, and that the further processing of the data contained in the respective frame or in the respective message is not started until it is apparent from the data transmitted in the reply field via the bus that the devices which are to be operated synchronously have received the frame or the message in a fault-free condition.

Appellants explained on page 27 of the specification, line 6, that it may also prove advantageous, in addition, if at least specific devices for which the respective frame or the respective message is not intended acknowledge, within the reply field, the fault-free reception of the frame or of the message or acknowledge fault-free reception. However, these acknowledgements preferably take place at a different point in time within the time slot defined by the reply field from the corresponding acknowledgement by the devices for which the respective frame or the respective message is intended. If one or more of the devices for which the respective frame or the respective message is not intended signal a faulty reception, this does not have any influence on the transmission of the current frame or of the respective message, but, in particular if it occurs frequently, it permits conclusions to be drawn as to the transmission reliability in the system, and can be interpreted as an inducement to perform maintenance or repair

work or to carry out changes in the system structure or in the system components.

It is stated in the last paragraph on page 27 of the specification, line 25, that it may also prove advantageous if individual devices, a plurality of devices or all the devices connected to the bus are set in such a way that they output a dominant bit onto the bus at different points in time within the time slot defined by the reply field if they have received the frame or the message in a fault-free condition until then and output a dominant bit - in each case at other different points in time within the time slot defined by the reply field - if the opposite is the case. This provides the possibility of monitoring whether the respective devices are still operating satisfactorily or for example - for whatever reason - have failed. It is possible to assume that the individual devices are still operating satisfactorily if they either signal a fault-free reception or a faulty reception; if one of the devices signals neither a fault-free reception nor a reception fault, or both a fault-free reception and a reception fault, this is a sign that the respective device is no longer operating satisfactorily.

As outlined on page 28 of the specification, line 18, it should be apparent that individual devices, a plurality of

devices or all the devices connected to the bus, including the device sending a frame or a message, can also feed onto the bus any other information during the time slot defined by the reply field (at specific points in time within that time slot). Such information is, for example, information relating to the operating mode (normal operating mode, energy-saving operating mode etc.) which the device is currently in, or some other information which could be of interest for one or a plurality of other devices.

Appellants mentioned on page 29 of the specification, line 4, that, in particular if the data to be transferred via the bus is transmitted with a very high clock frequency, it is possible to provide that the devices are provided with a relatively long time period within which they can feed onto the bus information which is to be fed onto the bus, that is to say the devices can be provided, for example, with a time period in which two or more bits can be transmitted via the bus, in order to output the bit onto the bus. As a result, it is possible to avoid faults which result from the fact that a device is no longer able to feed onto the bus, within a clock period reserved for that purpose, the information which is to be output onto the bus owing to problems with the synchronization with the common transmission clock.

It is further explained on page 29 of the specification, line 18, that the abovementioned explanations make it clear that the method described for transmitting data between devices connected via a bus makes it possible for data to be transmitted to be transmitted quickly, with a high level of efficiency and nevertheless with absolute reliability.

As stated in the last paragraph of the specification, starting at line 24 on page 25, it should be apparent that the frames or messages here can also have a structure other than that illustrated in Fig. 2. They may have, in particular, more fields, fewer fields and/or fields representing different contents.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1 - 5, 8 - 28, 31 - 46 and 93 - 94 are anticipated by U. S. Patent No. 6,347,097 to Deng under 35 U.S.C. §102(e).

2. Whether or not claims 7 and 30 are obvious over U. S. Patent No. 6,347,097 to Deng, in view of U. S. Patent No. 6,212,633 to Levy under 35 U.S.C. §103.

Argument:

I. Whether or not claims 1 - 5, 8 - 28, 31 - 46 and 93 - 94 are anticipated by U. S. Patent No. 6,347,097 to Deng under 35 U.S.C. §102(e).

In item 1 of the final Office Action, mailed May 9, 2005 ("**the final Office Action**"), claims 1 - 5, 8 - 28, 31 - 46, 93 and 94 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U. S. Patent No. 6,347,097 to Deng ("**DENG**").

Appellants respectfully disagree.

A. Appellants' claim 1 is patentable over the DENG reference.

More particularly, Appellants' claim 1 recites, among other limitations,

> **transmitting, in units**, data and information, concerning at least one of a transmission of the data and a use of the data, from a first device **to one or more second devices to which the data does not concern, and one or more third devices to which the data does concern**;
>
> **forming the units** at least partly **with at least one region defining a given time slot within which the second and third devices can output onto the bus specific information and/or data**; [emphasis added by Appellants]

Appellants' specification and claims clearly shows that the "**units**" that are **formed** to include a region defining a time slot within which the second and third devices can output

information and/or data, **are defined frames or messages**, as shown in Fig. 2 of the instant application. More particularly, paragraphs [0049] and [0050] of the instant application state:

> The aforesaid **units** in which the data to be transmitted is transmitted together with information that is required or useful for the transmission and/or the use of the data and/or further information, are, for example, the frames or messages which are known from already existing bus systems. **However, the frames or messages which are used in the method in question here have a structure different from conventional frames or messages.**
>
> **An example of the structure of a frame or a message which is used in the method in question here is illustrated in FIG. 2.** [emphasis added by Appellants]

Fig. 2 of the instant application is reproduced below for convenience.

FIG 2

As can be seen from Fig. 2, Appellants' claimed frames or **"units" include a field entitled "REPLY" which is part of the frame and which has a length defined as part of the definition of the frame**. This is supported in the instant application in paragraph [0051], which states:

> **This frame or this message comprises** a synchronization field SYN, an identifier field ID, a control field CTRL, a data field DATA, an error detection field CRC, **and a reply field REPLY**. [emphasis added by Appellants]

As noted above, Appellants' claim 1 requires, among other limitations, that **both second devices to which the data does not concern and third devices to which the data does concern** output data onto the bus **during the time period of a "REPLY" field of a particular unit.** This is further supported in the instant application in paragraph [0058], which states:

> The reply field REPLY is not filled with data, or at any rate only filled partially with data, by the device sending the frame or the message. **This field thus defines a time slot in which the devices which are not bus master can, or must, output data onto the bus.** Depending on the length of the time slot defined by the reply field, one or more bits can be transmitted via the bus in that time slot. [emphasis added by Appellants]

As such, all of Appellants' claims require, among other limitations: **Frames/"units"** transmitted **by a first unit** are formed to include **at least one region defining a given time slot within which second devices to which the data does not concern *and* third devices to which the data does concern, can output onto the bus specific information and/or data.** In other words, Appellants' claims require, among other things, **that the second and third devices output data onto the bus**

during a specific portion of a frame defined by the frame parameters, as sent by the first device.

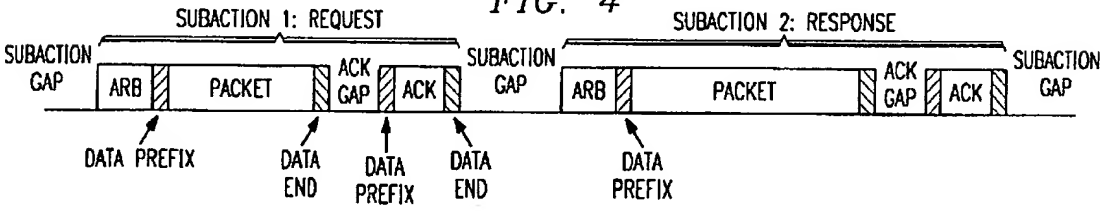
The **DENG** reference neither teaches, nor suggests, the transmission of such **"units"** or frames having a period **defined by the frame** sent by a first device, within which **second devices to which the data does not concern *and* third devices to which the data does concern, can output** information and/or data. More particularly, as set out in the response to the previous Office Action, that response being incorporated herein, **DENG** fails to teach or suggest that receivers downstream of the sender that are intended to receive the message **and that are not intended to receive the message** output information and/or data onto the bus **during a period of the frame sent by the sender**, as required by Appellants' claims. In fact, in **DENG**, only the device to which the message is intended transmits information and/or data onto the bus **during the transmitted frame**. **DENG** defines in its frame a period called the "ack-gap", during which **the device for which the message is intended** transmits information (i.e., an acknowledgement). This is supported by col. 6 of **DENG**, lines 34 - 43, which in relation to Fig. 4, states:

> Referring now to FIG. 4, **there is illustrated a subaction** in the link layer 52 **for an asynchronous transmission of a packet**. This subaction is in the form of a request and a response. There is provided an

arbitration sequence which is transmitted by a node that wishes to transmit a packet, this being transmitted to the physical layer 54 to gain control of the bus 58. The physical layer 54 may then respond immediately if it already controls the bus. This is followed **by a data packet transmission** which, for asynchronous subactions, involves the source node **sending** a data prefix signal (including a speed code, if needed), addresses of the source node and destination nodes, a transaction code, a transaction label, a retry code, data, one or two cyclic redundancy checks (CRCs), and a packet termination (either another data prefix or a data end signal). **This is all followed by an acknowledgment field wherein a uniquely addressed destination returns a code indicating to the transmitting node the action taken by the packet receiver.** [emphasis added by Appellants]

Fig. 4 of Deng is reproduced herebelow for convenience.

FIG. 4



DENG specifically teaches sending a data packet during a subaction gap, the data packet including a field (i.e., the "Ack-gap") in which **only a uniquely addressed destination returns a code**. This specifically differs from Appellants' claimed invention wherein a data packet/"**unit**" is sent including a field during which both **second devices to which the data does not concern *and* third devices to which the data does concern** output information and/or data.

In the Office Action, on page 2 of the Office Action, it is implied that the "**subaction gap**" of Fig. 4 of **DENG** is part of Appellants' claimed "units at least partly with at least one region defining a given time slot within which the devices transmitting no data can output data representing specific information". Appellants' respectfully disagree. As shown in Fig. 4 of **DENG** , the "subaction gap" **is not part of the transmitted data packet**. Note in Fig. 4 of **DENG** the brackets delimiting subaction 1 from subaction 2, **do not include the subaction gap**. That the "**subaction gap**" of **DENG** is not part of the transmitted data packet **or** defined by the transmitted data packet is further supported in col. 6 of **DENG**, lines 43 - 52, states:

> **Each of these asynchronous subactions is separated by periods of idle bus called "subaction gaps."** This gap is disposed between the packet transmission and acknowledgment reception. This "ack-gap" is of varying lengths depending upon where the receiver is on the bus with respect to the senders of the link request and acknowledgment (ack). **However, the maximum length of the ack-gap is sufficiently shorter than a subaction gap to ensure that other nodes on the bus will not begin arbitration before the acknowledgment has been received.** [emphasis added by Appellants]

The above portion of **DENG** sets out, both, that the **subaction gaps are not part of the data packet transmissions, nor defined as part of the frame/"unit", as required by Appellants' claim 1**, and that the "ack-gap" of the subaction

is set sufficiently short so that other devices do not use it to begin arbitration. Clearly, **DENG** fails to teach or suggest "units" sent by a first device including predefined time periods **in the unit/frame** during which **both devices for which the message concerns/is intended and devices for which the message does not concern/is not intended output information and/or data, as required by Appellants' claim 1.** Rather, the "subaction period" of **DENG, as specifically shown in Fig. 4,** is not part of the transmitted data packet or "unit", and is not a time period defined by the transmitted data packet or "unit". **DENG** does not teach or suggest that the data packet definition is what defines the length of the subaction gap. As such, although the **DENG** reference discloses a data packet including an "ack-gap" period, during which a device for which the message is intended outputs "a code", **DENG** neither teaches, nor suggests, a time period **as part of the data packet or unit, and defined by the data packet or unit**, during which a device **for which the message is not intended**, outputs information and/or data.

Further, in the Advisory Action mailed August 19, 2005, it is alleged that the combination of the **subaction gap and** the **subsequent arbitration period** of **DENG** somehow teach or suggest Appellants' particularly claimed "**units**". However,

Appellants' respectfully disagree. Among other things, it is alleged in the Advisory Action that:

> Applicant further argues that in Deng "only a uniquely addressed destination returns a code" (p. 7); however this neglects the action of the arbitration period, where "devices to which the data does not concern" in fact sends data. Deng's sub-action gap and subsequent arbitration period collectively comprise a defined "region" for both devices (those the data concerns and does not concern).

However, **DENG**'s subaction gap and subsequent arbitration period are part of the response portion of the request/response pair for the subaction of Fig. 4 of **DENG**. As stated in col. 2 of **DENG**, lines 40 - 51:

> **The transaction layer defines a complete request-response protocol to perform the bus transactions** required to support the CSR architecture (control and status registers). This provides operations of read, write and lock. The link layer 52 provides an acknowledge datagram (a one-way data transfer with confirmation of request) service to the transaction layer 50. It provides addressing, data checking, and data framing for packet transmission and reception. The link layer 52 also provides an isochronous data transfer service directly to the application, including the generation of a "cycle" signal utilized for timing and synchronization. **One link layer transfer is called a "subaction."** [emphasis added by Appellants]

Further, as stated in col. 6 of **DENG**, lines 26 - 28:

> Referring now to FIG. 4, there is illustrated a subaction in the link layer 52 for an asynchronous transmission of a packet. **This subaction is in the form of a request and a response.** [emphasis added by Appellants]

As further stated in col. 6 of **DENG**, lines 53 - 67:

> Referring now to FIG. 5, there is illustrated a diagrammatic view of the manner in which the link layer 52 services a request. **As noted above, the link layer 52 utilizes the request, indication, response and confirmation service primitives. The request primitive is utilized by a link requestor to transfer the packet to a link responder**. An indication primitive indicates the reception of a packet by a link responder. **A response primitive indicates the transmission of an acknowledgment by a link responder**, and the confirmation primitive indicates the reception of the acknowledgment by the link requestor. Once the link request has been made, the system goes through an arbitration and packet transmission **to the receiving node, which then provides a response back in the form of an acknowledgment to the requesting link layer, which will then confirm transmission.** [emphasis added by Appellants]

As such, piecing together from the description of **DENG** the complete **subaction** of Figs. 4 and 5 of **DENG**, it can be seen that the subaction gap and subsequent arbitration period, located **between** the request and the response, **are present solely for a response to come from the link responder**, i.e., a device to which the packet was intended. As such, contrary to the allegation made in the Advisory Action, the subaction gap and subsequent arbitration period in the subaction of Fig. 4 are not "units" sent by a first device including predefined time periods **in the unit/frame** during which **both devices for which the message concerns/is intended and devices for which the message does not concern/is not intended output information and/or data, as required by Appellants' claim 1.**

Rather, it appears from **DENG**, that the device for which the information is intended is the only device that responds during the subaction gap and subsequent arbitration period (i.e., hence the heading "Subaction 2: Response" in Fig. 4 of **DENG**), and **devices for which the message does not concern/is not intended do not output information and/or data during those times.**

In view of the foregoing, Appellants' believe that the **DENG** reference neither teaches, nor suggests, all of the limitations of Appellants' independent claim 1. As such, Appellants' claim 1 is believed to be patentable over the **DENG** reference.

B. Appellants' independent claims 24, 93 and 94 are patentable over the DENG reference.

Appellants' independent claims 24, 93 and 94 recite similar limitations to those cited above in connection with claim 1.

For example, Appellants' independent claim **24** recites, among other limitations:

> **transmitting, in units**, data and information, concerning at least one of a transmission and a use of the data, from a first device **to one or more second devices, to which the data is not intended, and one or more third devices, to which the data is intended**;

> **forming the units** at least partly **with at least one region defining a given time slot within which the one or more second and third devices can output onto the bus information and/or data**; [emphasis added by Appellants]

Appellants' independent claim **93** recites, among other limitations:

> **transmitting, in units**, data and information, concerning at least one of a transmission and a use of the data, from a first device **to one or more second devices to which the data does not concern, and/or one or more third devices, to which the data does concern**;
>
> **forming the units** at least partly **with at least one region defining a given time slot within which the second and/or third devices can output onto the bus specific information and/or data**; [emphasis added by Appellants]

Further, Appellants' independent claim **94** recites, among other limitations:

> **transmitting, in units**, data and information, concerning at least one of a transmission and a use of the data, from a first device **to one or more second devices, to which the data is not intended and/or one or more third devices, to which the data is intended**;
>
> **forming the units** at least partly **with at least one region defining a given time slot within which the one or more second and/or third devices can output onto the bus information and/or data**; [emphasis added by Appellants]

As stated above in section A, that section incorporated herein, **DENG** fails to teach or suggest, among other limitations of Appellants' claims, "units" sent by a first device including predefined time periods **in the unit/frame**

during which **both devices for which the message concerns/is intended and devices for which the message does not concern/is not intended output information and/or data**, as required by Appellants' claims.

As such, it is believed that Appellants' independent claims 24, 93 and 94 are additionally patentable over the **DENG** reference.

II. Whether or not claims 7 and 30 are obvious over U. S. Patent No. 6,347,097 to Deng, in view of U. S. Patent No. 6,212,633 to Levy under 35 U.S.C. §103.

In item 2 of **the final Office Action**, claims 7 and 30 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **DENG** in view of U. S. Patent No. 6,212,633 to Levy ("**LEVY**").

Appellants respectfully disagree.

Appellants believe that the **LEVY** reference, cited in combination with **DENG** against certain of Appellants' dependent claims, additionally fails to teach or suggest the above described elements of Appellants' independent claims missing from the **DENG** reference, among others. As such, **DENG**, alone,

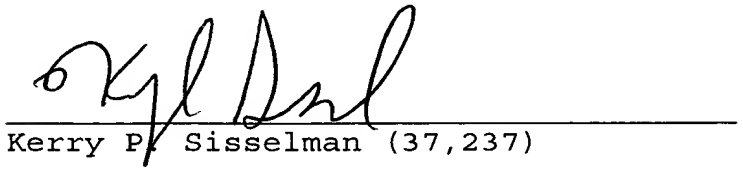
or in combination with **LEVY**, fails to teach or suggest Appellants' claimed invention of dependent claims 7 and 30.

III. Conclusion.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1, 24, 93 and 94. Claims 1, 24, 93 and 94 are, therefore, believed to be patentable over the art. The dependent claims, including claims 7 and 30, are believed to be patentable as well because they all are ultimately dependent on claims 1 or 24.

The honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,



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Claims Appendix:

1. A method of transmitting data between devices interconnected via a bus, which comprises:

transmitting, in units, data and information, concerning at least one of a transmission and a use of the data, from a first device to one or more second devices to which the data does not concern, and one or more third devices, to which the data does concern;

forming the units at least partly with at least one region defining a given time slot within which the second and third devices can output onto the bus specific information and/or data; and

defining, in the second and third devices, enabled for outputting data within the given time slot, settings selected from the group consisting of a setting to determine under which conditions information and/or data are to be output within the given time slot, a setting to determine which information and/or data are to be output within the given time slot, and a setting to determine at which points in time within the time slot the information and/or data are to be output.

2. The method according to claim 1, which comprises determining the settings relating to the given time slot before a start of the transmission of the unit containing the given time slot.

3. The method according to claim 1, which comprises determining the settings relating to the given time slot with one or more of the devices connected to the bus.

4. The method according to claim 1, which comprises determining the settings relating to the given time slot based on one of data and instructions transmitted to the respective devices via the bus.

5. The method according to claim 1, which comprises determining the settings relating to the given time slot upon initializing the devices.

7. The method according to claim 1, which comprises storing the settings relating to the given time slot in nonvolatile memory devices.

8. The method according to claim 1, wherein the units for transmitting the data and the information concerning the transmission or the use of the data are frames.

9. The method according to claim 1, wherein the units for transmitting the data and the information concerning the transmission or the use of the data are messages.

10. The method according to claim 1, wherein the units in which the data to be transmitted are transmitted together with the information which is required or useful for the transmission and/or the use of the data is transmitted in each case serially via the bus at a specific transmission clock rate.

11. The method according to claim 1, which comprises determining with the data and information contained in the units containing the data and information required or useful for the transmission or the use of the data, whether certain devices output information onto the bus and at which points in time.

12. The method according to claim 11, which comprises determining with the data and information contained in the units which devices output information onto the bus.

13. The method according to claim 1, which comprises defining the given time slot for transmission of one or more bits via the bus.

14. The method according to claim 1, wherein the data to be output onto the bus during the given time slot comprise a positive acknowledge bit indicating that the device outputting the acknowledge bit onto the bus has previously received in a fault-free condition data transmitted via the bus.

15. The method according to claim 14, wherein the one or more second and/or third devices which are connected to the bus are set in such a way that exclusively, the one or more third devices, for which the data transmitted via the bus are intended, acknowledge the fault-free reception of the data by outputting a positive acknowledge bit onto the bus.

16. The method according to claim 14, wherein, if a plurality of the devices connected to the bus are set in such a way that they have to acknowledge the fault-free reception of the data by outputting a positive acknowledge bit, the plurality of devices are set such that the positive acknowledge bits are output by the plurality of devices at different points in time.

17. The method according to claim 15, wherein the devices connected to the bus are set such that the one or more second devices, for which the data transmitted via the bus is not intended, do not output any data onto the bus at least at the points in time at which the one or more third devices, for which the data transmitted via the bus is intended, must be able to acknowledge the fault-free reception of the data.

18. The method according to claim 1, wherein the data to be output onto the bus during the given time slot comprise a negative acknowledge bit indicating that the device outputting the negative acknowledge bit onto the bus has previously not received in a fault-free condition data transmitted via the bus.

19. The method according to claim 18, wherein the devices connected to the bus are set such that exclusively, the one or more third devices, for which the data transmitted via the bus is intended, signal a non-fault-free reception of the data by outputting a negative acknowledge bit onto the bus.

20. The method according to claim 18, wherein if a plurality of the devices connected to the bus are set such that they have to signal the non-fault-free reception of the data by

outputting a negative acknowledge bit, at least some of the plurality of the devices are set such that they output at the same time the negative acknowledge bits that are to be output if at least some of the plurality of devices receive non-fault-free data.

21. The method according to claim 18, wherein the devices connected to the bus are set such that the at least one second device, for which the data transmitted via the bus is not intended, does not output any data onto the bus at least at the points in time at which the at least one third device, for which the data transmitted via the bus is intended, must be able to signal the non-fault-free reception of the data.

22. The method according to claim 1, wherein the devices connected to the bus are set such that individual devices, a plurality of devices, or all the devices connected to the bus output a positive acknowledge bit onto the bus at different points in time within the given time slot if the devices have received in a fault-free condition data previously transmitted via the bus, or they output a negative acknowledge bit if the opposite is the case, in each case at other, different points in time within the given time slot.

23. The method according to claim 1, wherein the devices connected to the bus are set such that a content of the current frame or of a specific preceding frame or the content of the current message or of a specific preceding message determines which of the devices has to output which information onto the bus at which point in time.

24. A method of transmitting data between devices interconnected via a bus, which comprises:

transmitting, in units, data and information, concerning at least one of a transmission and a use of the data, from a first device to one or more second devices, to which the data is not intended, and one or more third devices, to which the data is intended;

forming the units at least partly with at least one region defining a given time slot within which the one or more second and third devices can output onto the bus information and/or data; and

defining, in the first device, settings selected from the group consisting of a setting to determine which other devices have to output information and/or data within the given time slot, a setting to determine which information and/or data are to be output within the given time slot by

the other devices, and a setting to determine at which points in time within the given time slot the other devices have to output the respective information and/or data.

25. The method according to claim 24, which comprises determining the settings relating to the given time slot before a start of the transmission of the unit containing the given time slot.

26. The method according to claim 24, which comprises determining the settings relating to the given time slot with one or more of the devices connected to the bus.

27. The method according to claim 24, which comprises determining the settings relating to the given time slot based on one of data and instructions transmitted to the respective devices via the bus.

28. The method according to claim 24, which comprises determining the settings relating to the given time slot upon initializing the devices.

30. The method according to claim 24, which comprises storing the settings relating to the given time slot in nonvolatile memory devices.

31. The method according to claim 24, wherein the units for transmitting the data and the information concerning the transmission or the use of the data are frames.

32. The method according to claim 24, wherein the units for transmitting the data and the information concerning the transmission or the use of the data are messages.

33. The method according to claim 24, wherein the units in which the data to be transmitted are transmitted together with the information which is required or useful for the transmission and/or the use of the data is transmitted in each case serially via the bus at a specific transmission clock rate.

34. The method according to claim 24, which comprises determining with the data and information contained in the units containing the data and information required or useful for the transmission or the use of the data, whether certain devices output information onto the bus and at which points in time.

35. The method according to claim 34, which comprises determining with the data and information contained in the units which devices output information onto the bus.

36. The method according to claim 24, which comprises defining the given time slot for transmission of one or more bits via the bus.

37. The method according to claim 24, wherein the data to be output onto the bus during the given time slot comprise a positive acknowledge bit indicating that the device outputting the acknowledge bit onto the bus has previously received in a fault-free condition data transmitted via the bus.

38. The method according to claim 37, wherein the devices which are connected to the bus are set in such a way that exclusively devices for which the data transmitted via the bus are intended acknowledge the fault-free reception of the data by outputting a positive acknowledge bit onto the bus.

39. The method according to claim 37, wherein, if a plurality of the devices connected to the bus are set in such a way that they have to acknowledge the fault-free reception of the data by outputting a positive acknowledge bit, the

plurality of devices are set such that the positive acknowledge bits, which are to be output if at least some of the plurality of devices receive fault-free data, are output by the plurality of devices at different points in time.

40. The method according to claim 38, wherein the devices connected to the bus are set such that the one or more second devices, for which the data transmitted via the bus is not intended, do not output any data onto the bus at least at the points in time at which the one or more third devices, for which the data transmitted via the bus is intended, must be able to acknowledge the fault-free reception of the data.

41. The method according to claim 24, wherein the data to be output onto the bus during the given time slot comprise a negative acknowledge bit indicating that the device outputting the negative acknowledge bit onto the bus has previously not received in a fault-free condition data transmitted via the bus.

42. The method according to claim 41, wherein the devices connected to the bus are set such that exclusively, the one or more third devices, for which the data transmitted via the bus is intended, signal a non-fault-free reception of the data by outputting a negative acknowledge bit onto the bus.

43. The method according to claim 41, wherein if a plurality of the devices connected to the bus are set such that they have to signal the non-fault-free reception of the data by outputting a negative acknowledge bit, at least some of the plurality of the devices are set such that they output at the same time the negative acknowledge bits that are to be output if at least some of the plurality of devices receive non-fault-free data.

44. The method according to claim 41, wherein the devices connected to the bus are set such that the at least one second device, for which the data transmitted via the bus is not intended, does not output any data onto the bus at least at the points in time at which the at least one third device, for which the data transmitted via the bus is intended, must be able to signal the non-fault-free reception of the data.

45. The method according to claim 24, wherein the devices connected to the bus are set such that individual devices, a plurality of devices, or all the devices connected to the bus output a positive acknowledge bit onto the bus at different points in time within the given time slot if the devices have received in a fault-free condition data previously transmitted via the bus, or they output a negative

acknowledge bit if the opposite is the case, in each case at other, different points in time within the given time slot.

46. The method according to claim 24, wherein the devices connected to the bus are set such that a content of the current frame or of a specific preceding frame or the content of the current message or of a specific preceding message determines which of the devices has to output which information onto the bus at which point in time.

93. A method of transmitting data between devices interconnected via a bus, which comprises:

transmitting, in units, data and information, concerning at least one of a transmission and a use of the data, from a first device to one or more second devices to which the data does not concern, and/or one or more third devices, to which the data does concern;

forming the units at least partly with at least one region defining a given time slot within which the second and/or third devices can output onto the bus specific information and/or data; and

defining, in the second and third devices, enabled for

outputting data within the given time slot, settings selected from the group consisting of a setting to determine under which conditions information and/or data are to be output within the given time slot, a setting to determine which information and/or data are to be output within the given time slot, and a setting to determine at which points in time within the time slot the information and/or data are to be output;

wherein the settings relating to the given time slot are variable settings.

94. A method of transmitting data between devices interconnected via a bus, which comprises:

transmitting, in units, data and information, concerning at least one of a transmission and a use of the data, from a first device to one or more second devices, to which the data is not intended and/or one or more third devices, to which the data is intended;

forming the units at least partly with at least one region defining a given time slot within which the one or more second and/or third devices can output onto the bus information and/or data; and

defining, in the first device, settings selected from the group consisting of a setting to determine which other devices have to output information and/or data within the given time slot, a setting to determine which information and/or data are to be output within the given time slot by the other devices, and a setting to determine at which points in time the given time slot the other device have to output the respective information and/or data;

wherein the settings relating to the given time slot are variable settings.

Evidence Appendix:

No evidence pursuant to && 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

Since there are no prior or pending appeals, interferences or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal, no copies of decision rendered by a court or the Board are available.